

Application No. 09/554,414  
 Reply to Office Action  
 March 21, 2006

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

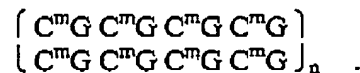
**Listing of Claims:**

1-31. (canceled)

32. (currently amended) A method of altering a demethylation activity of DNA demethylase in [[a]] an isolated human cell comprising amino acids 150-411 of SEQ ID NO:2, the method comprising inhibiting DNA demethylase with an antagonist selected from the group consisting of a double stranded C<sup>m</sup>G oligonucleotide, an anti-DNA demethylase antibody, antisense oligonucleotide of DNA demethylase, and imidazole, wherein said DNA demethylase comprises amino acids 150-411 of SEQ ID NO:2.

33. (previously presented) The method according to claim 32, wherein said antagonist is a double stranded C<sup>m</sup>G oligonucleotide that inhibits DNA demethylase at a K<sub>i</sub> of 50nM.

34. (previously presented) The method according to claim 33, wherein said oligonucleotide is



35-40. (canceled)

41. (previously presented) The method according to claim 32, wherein said antagonist is an anti-DNA demethylase antibody.

42. (previously presented) The method according to claim 32, wherein said antagonist is an antisense oligonucleotide of DNA demethylase.

43. (previously presented) The method according to claim 32, wherein said antagonist is imidazole.

44. (canceled)